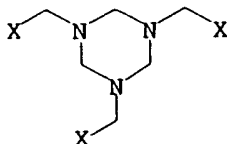


We claim:

1. A process for the preparation of N-phosphonomethylglycine,  
5 wherein

- a) a hexahydrotriazine derivative of the formula II

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(II)

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in which X is CN, COOZ, CONR<sup>1</sup>R<sup>2</sup> or CH<sub>2</sub>OY,

Y is H or a radical which is readily exchangeable for H,

20

Z is H, an alkali metal, alkaline earth metal, C<sub>1</sub>-C<sub>18</sub>-alkyl or aryl, which is unsubstituted or substituted by C<sub>1</sub>-C<sub>4</sub>-alkyl, NO<sub>2</sub> or OC<sub>1</sub>-C<sub>4</sub>-alkyl,

R<sup>1</sup> and R<sup>2</sup> can be identical or different and are H or

25

C<sub>1</sub>-C<sub>4</sub>-alkyl,

is reacted with a triacyl phosphite of the formula III



(III)

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in which the radicals R<sup>3</sup>, which can be identical or different, are C<sub>1</sub>-C<sub>18</sub>-alkyl or aryl which is unsubstituted or substituted by C<sub>1</sub>-C<sub>4</sub>-alkyl, NO<sub>2</sub> or OC<sub>1</sub>-C<sub>4</sub>-alkyl,

35

and

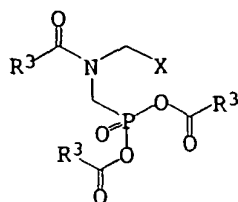
- b) the product obtained is hydrolyzed, and, if X is CH<sub>2</sub>OY, oxidized.

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2. A process as claimed in claim 1, wherein reaction of the hexahydrotriazine derivative of the formula II with the triacyl phosphite of the formula III gives a compound of the formula I

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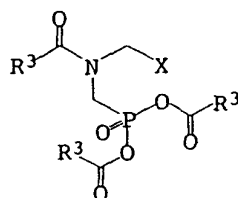


(I)

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in which  $R^3$  and  $X$  have the meanings stated in claim 1.

- 10 3. A process for the preparation of a phosphono compound of the formula I



(I)

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- 20 in which the radicals  $R^3$ , which can be identical or different, are  $C_1$ - $C_{18}$ -alkyl or aryl which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl, and

$X$  us  $CN$ ,  $COOZ$ ,  $CONR^1R^2$  or  $CH_2OY$ ,

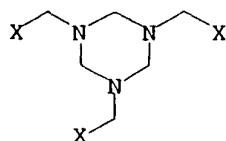
- 25  $Y$  is  $H$  or a radical which is readily exchangeable for  $H$ ;

$Z$  is  $H$ , an alkali metal, alkaline earth metal,  $C_1$ - $C_{18}$ -akyl or aryl, which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl;

30

$R^1$  and  $R^2$ , which can be identical or different, are  $H$  or  $C_1$ - $C_4$ -alkyl, in which a hexahydrotriazine derivative of the formula II

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(II)

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is reacted with a triacyl phosphite of the formula III



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in which  $R^3$  and  $X$  are as defined above.

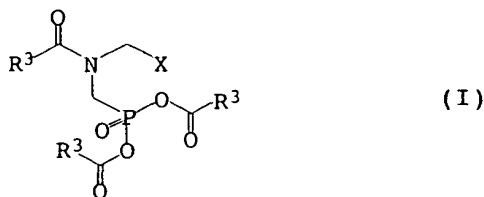
## 19

4. A process as claimed in any of the preceding claims, wherein X is CN or COOZ.
5. A process as claimed in any of the preceding claims, wherein R<sup>3</sup> is phenyl which is unsubstituted or substituted by C<sub>1</sub>-C<sub>4</sub>-alkyl, NO<sub>2</sub> or OC<sub>1</sub>-C<sub>4</sub>-alkyl, or is CH<sub>3</sub>.
6. A process as claimed in any of the preceding claims, wherein step (a) is carried out in an organic solvent.
7. A process as claimed in claim 6, wherein the solvent used is dioxane or tetrahydrofuran.
8. A process as claimed in claim 6, wherein a chlorinated organic solvent is used.
9. A process as claimed in claim 8, wherein 1,2-dichloroethane is used as solvent.
10. A process as claimed in any of the preceding claims, wherein the compounds of the formulae II and III are employed in essentially equivalent amounts.
11. A process as claimed in any of the preceding claims, wherein the compound of the formula III is prepared by reacting a carboxylic acid of the formula IV
- $$\text{R}^3\text{COOH} \quad (\text{IV}),$$
- in which R<sup>3</sup> has the meanings stated in claim 1 or a salt thereof with a phosphorus trihalide.
12. A process as claimed in claim 11, wherein an alkali metal salt or the ammonium salt of the carboxylic acid of the formula IV is reacted with the phosphorus halide.
13. A process as claimed in claim 11, wherein the carboxylic acid of the formula IV is reacted with the phosphorus halide in the presence of an amine.
14. A process as claimed in claim 11, wherein the carboxylic acid of the formula IV is reacted with the phosphorus halide in the absence of a base.

## 20

15. A process as claimed in any of claims 11 to 14, wherein the reaction is carried out in an inert organic solvent which is selected from among the aromatic or aliphatic hydrocarbons and chlorinated hydrocarbons.
- 5 16. A process as claimed in claim 15, wherein the solvent is recovered after the reaction and recycled.
17. A process as claimed in any of claims 1, 2 or 4 to 9, wherein  
10 the compound of the formula I is hydrolyzed with an aqueous acid.
18. A process as claimed in claim 17, wherein the hydrolysis is carried out in a two-phase system.
- 15 19. A process as claimed in claim 18, wherein the phosphono-methylglycine is precipitated from the aqueous phase by bringing the pH to a value of in the range of 0.5 to 2.0.
- 20 20. A process as claimed in claim 19, wherein the phosphono-methylglycine is precipitated in the presence of a solvent which is miscible with water.
21. A phosphono compound of the formula I

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in which the radicals  $R^3$ , which can be identical or different, are  $C_1$ - $C_{18}$ -alkyl or aryl which is unsubstituted or  
35 substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl, and

X is CN,  $COOZ$ ,  $CONR^1R^2$  or  $CH_2OY$ ,

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Y is H or a radical which is readily exchangeable for H;

Z is H, an alkali metal, alkaline earth metal,  $C_1$ - $C_{18}$ -alkyl or aryl, which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl;

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$R^1$  and  $R^2$ , which can be identical or different, are H or  $C_1$ - $C_4$ -alkyl, or a salt thereof.

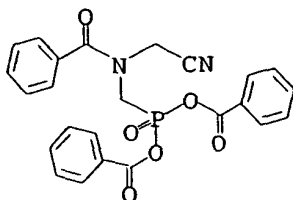
## 21

22. A compound as claimed in claim 21, wherein  $R^3$  is phenyl which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl, or is methyl.

5 23. A compound as claimed in claim 21 or 22, wherein X is CN or  $COOZ$ , wherein Z is H, alkali metal or  $C_1$ - $C_{18}$ -alkyl.

24. A compound as claimed in claim 21 of the formula

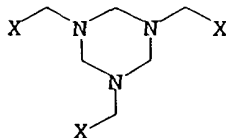
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25. An intermediate obtainable by reacting a hexahydrotriazine derivative of the formula II

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(II)

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in which X is CN,  $COOZ$ ,  $CONR^1R^2$  or  $CH_2OY$ ,

30 Y is H or a radical which is readily exchangeable for H;

Z is H, an alkali metal, alkaline earth metal,  $C_1$ - $C_{18}$ -alkyl or aryl, which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl;

35

$R^1$  and  $R^2$  can be identical or different and are H or  $C_1$ - $C_4$ -alkyl,

is reacted with a triacyl phosphite of the formula III

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in which the radicals  $R^3$ , which can be identical or different, are  $C_1$ - $C_{18}$ -alkyl or aryl which is unsubstituted or substituted by  $C_1$ - $C_4$ -alkyl,  $NO_2$  or  $OC_1$ - $C_4$ -alkyl.

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